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Recent U.S. Advances in Food Processing

DEC. 2015

Ockerman (OSU) and Basu (UK)



Multistate outbreaks are
responsible for more than
half of food poisoning deaths



Three Types of Bacteria

- Salmonella
- E. coli
- Listeria
- Cause 91% of outbreaks
- Widely distributed foods such as vegetables, beef, chicken, and fresh fruits
- Norovirus (recent outbreak in Mexican fast food chain in US)



- Compared outbreaks that occurred in two or more states to those that occurred in a single state
- Showed 120 multistate outbreaks accounted for:
 - 11% of illnesses
 - 34% of hospitalizations
 - 56% of deaths



- The food industry needs to play a bigger role in improving food safety by keeping detailed records to allow for faster tracing of foods
- 2016 will require companies to take a science-based approach to building safety controls into food production



Food companies need to voluntarily submit the genetic sequences of the pathogens they find in their food production plants to a nationwide database.



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10 Restaurant Trends for 2016



The food research and consulting firm has predicted 10 trends that may prove transformational in 2016.



1.) The Sriracha Effect:

- Ghost pepper (worlds' spiciest chili pepper)
India
- Sambal (hot and spicy condiments) S E Asia
- Harissa (hot); Dukka (tangy) North Africa

Sriracha sauce (hot or chili sauce) can add instant ethnic cachet (magic touch to) a sandwich, Chefs are scouting for other assertive flavorings to employ in similar ways.



2.) Elevating Peasant Fare:

- Meatballs and sausages are proliferating
 - Traditional, ethnic, or nouveau (new), shaped of many types
- Combinations of meats such as multi-ethnic dumplings



3.) Trash to Treasure:

- High protein prices
- Raised the use of under-utilized stewing cuts, organ meats and “trash” species of fish



- Smoke and fire are showing up everywhere
- Charred or roasted vegetable sides
- Desserts with charred fruits or burnt-sugar toppings
- Cocktails featuring smoked salt, smoked ice, or smoky syrups



5.) Bubbly:

- Effervescence makes light work of the trendiest beverages
- Champagnes and Proseccos (sparkling wine)
- Adult-only “hard” soft drinks like ginger ales and root beers
- Fruit-based artisanal (made by hand) sodas
- Sparkling teas



6.) Negative on GMOs:

- Whatever the science says, many
 - Consumers have made up their minds; no genetic tinkering with their food
 - Some diners will gravitate to restaurants touting GMO-free fare
 - Others will demand GMO labeling on menus



7.) Modernizing the supply chain:

- Climate destabilization
- Mutating pathogens
- Rising transportation costs
- Will lead to increasingly frequent stresses on the food supply chain
- Consumers demand “fresh” and local”



8.) Fast food refresh:

- Consumers gravitate to “better” fast food
- Concepts with fresher menus exploit a price niche between fast food and fast casual
- “Build your own” formats are springing up in more menu categories



9.) Year of the worker:

- Tighter labor market
- Boost minimum wages
- Front-of-house technology and back-of-house automation
- Do more with fewer or lower-level workers



10.) The Delivery revolution:

- Delivery services make “dining in” easier than ever
- Deliver food from commissaries, bypassing the brick-and-mortar restaurant all together



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Research briefs



- A study investigates the impacts on nutrition and food safety. There has been an upsurge in milk consumption worldwide, especially in developing countries.
- Water is the most common adulterant used - sometimes, water is contaminated with chemicals or pathogens
- Milk powder, urea, cane sugar. Melamine (67% nitrogen by mass), formalin caustic soda, and detergents may be added.



- Restaurants that voluntarily list calorie counts average nearly 140 fewer calories
- American chain restaurants with more than 20 outlets
- Five of the 66 largest U.S. restaurant chains have already introduced voluntary calorie counts
 - McDonald's since 2012
 - Chick-fil-A and Starbucks since 2013
- Including ice cream shops and movie theaters, will be required to post calories beginning December 2016



Consumers turn to retail outlets for prepared meals and snacks:

- Supermarkets and Convenience stores (c-stores) are raising the bar on their food service offerings
- Quick service restaurants (QSRs) have incrementally added customers do to quick and convenient food
- The majority of consumers are using multiple channels, retail outlets and QSRs
- Grocery stores hold a high share of purchases of chicken, side dishes and salads
- “The lines between retail foodservice and QSRs are blurring. . .”



- Help reduce a cluster of chronic metabolic diseases, in children:
 - High cholesterol
 - Blood pressure
- After just nine days on the sugar-restricted diet, virtually every aspect of the participants' metabolic health improved, without change in weight



- Although same-store sales remained positive in September, the National Restaurant Association's Restaurant Performance Index (RPI) registered a modest decline
- Restaurant operators reported an increase in customer traffic
- 12% of restaurant operators expect their sales volume in six months to be lower than it was during the same period in the previous year
- While 53% expect their sales to remain about the same



- Lower nutrient intake
- Birth defects
- Anemia
- Aggression
- Anxiety
- Asthma
- Behavioral problems
- Depression
- Thoughts of suicide
- Poor oral health



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HACCP

Hazard Analysis

and Critical

Control Point



1. Conduct a hazard analysis
2. Determine the Critical Control Points (CCPs)
3. Establish critical limit(s)
4. Establish a system to monitor control of the CCP
5. Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control
6. Establish procedures for verification to confirm that the HACCP system is working effectively
7. Establish documentation concerning all procedures and records appropriate to these principles and their application



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